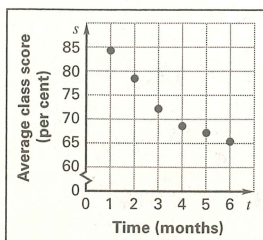


Lesson 7.5, continued

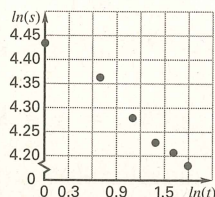
15. $\ln 2 \approx 0.6931$, $\ln 3 \approx 1.0986$, $\ln 4 \approx 1.3862$,
 $\ln 5 \approx 1.6094$, $\ln 6 \approx 1.7917$, $\ln 8 \approx 2.0793$,
 $\ln 9 \approx 2.1972$, $\ln 10 \approx 2.3025$, $\ln 12 \approx 2.4848$,
 $\ln 15 \approx 2.7080$, $\ln 16 \approx 2.7724$, $\ln 18 \approx 2.8903$,
 $\ln 20 \approx 2.9956$

16. a.



The data does not follow a linear pattern.

b.



The data does follow a linear pattern.

$$\ln s = -\frac{3}{20} \ln t + 4.44$$

Lesson 7.6

Teaching Guide

1. 0.349 2. 0.220 3. 12.182 4. 5

Practice Level A

1. yes 2. no 3. no 4. yes 5. yes 6. no
 7. no 8. yes 9. no 10. yes 11. yes 12. no
 13. all real numbers 14. 2 15. 3 16. 1
 17. $\frac{1}{2}$ 18. 3 19. 4 20. $\frac{1}{2}$ 21. $\frac{5}{2}$ 22. 4
 23. $\log_5 22$ 24. $\ln 3$ 25. $\frac{\ln 6}{3}$ 26. $\log_4 9$
 27. $\frac{\log 14 - 1}{4}$ 28. 5 29. $\frac{1}{2}$ 30. 1 31. $\frac{5}{4}$
 32. no solution 33. $\frac{4}{5}$ 34. 1000 35. 17
 36. 81 37. -170 38. $e^4 - 7$ 39. 0 40. C
 41. 17.4 yr 42. 28.0 yr 43. 34.7 yr

Practice Level B

1. 0 2. 1.386 3. 1.792 4. 1.544 5. 1.661
 6. 0.750 7. 0.693 8. 0.462 9. 2.102
 10. -0.405 11. -0.469 12. no solution
 13. $\frac{5}{2}$ 14. 7 15. 2.243 16. -0.462 17. 5

18. 1.391 19. 2 20. -9 21. $\frac{4}{5}$ 22. -3.497
 23. 2.730 24. no solution 25. 0.327 26. 0.362
 27. no solution 28. 1000 29. 54.598 30. 243
 31. $\frac{1}{3}$ 32. no solution 33. $\frac{2}{7}$ 34. 1365.333
 35. 85.667 36. 30.375 37. -58,824
 38. 39.121 39. -134.143 40. $\frac{10}{7}$ 41. 29.333
 42. 4 43. 6 44. 36.399 45. 0.152 46. B
 47. 13.0 yr 48. 28.1 yr 49. 38.2 yr 50. 22.88

Practice Level C

1. 1.609 2. 4.639 3. 0.973 4. 4.459
 5. 2.096 6. 0.219 7. 2.473 8. 0.018
 9. 6.091 10. 0.262 11. -4.420 12. 3.5
 13. -0.135 14. -1, 2 15. 0 16. 3 17. $-\frac{9}{2}$
 18. $\frac{7}{2}$ 19. 9998 20. e 21. 12 22. -341
 23. 1 24. 1 25. 1 26. 5 27. no solution
 28. -2 29. $2, \frac{5}{2}$ 30. 5 31. 4, 8 32. $\frac{3}{2}, 2$
 33. 0.656 34. 2 35. -9.110 36. 20 yr
 37. \$206,400 38. \$86,400

Study Guide

1. 2 2. 1 3. $\frac{1}{2}$ 4. about 0.565 5. about 0.528
 6. about 3.89 7. 0 8. 6 9. -1 10. 9 11. e^2
 12. 6

Interdisciplinary Application

1. $\text{pH} = 6.1 + \log_{10} x - \log_{10} y$ 2. 7.426; yes
 3. 28 4. 1.30

Challenge Practice

1. $2 \ln 75 \approx 8.635$ 2. $\frac{\ln 31}{6} \approx 0.572$
 3. $\frac{\ln 4}{365 \ln \left(1 + \frac{0.065}{365}\right)} \approx 21.330$
 4. $\frac{\ln 30}{3 \ln \left(16 - \frac{0.878}{26}\right)} \approx 0.409$ 5. no solution
 6. $\frac{-1 + \sqrt{17}}{2}$ 7. 1, e^2 8. e, e^2
 9. $t = -\frac{1}{r} \ln \left(\frac{T - T_R}{T_0 - T_R} \right);$